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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,866	08/29/2003	Derek A. Debe	54318.8005.US01	1007

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EXAMINER	
BORIN, MICHAEL L	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/652,866	DEBE ET AL.	
	Examiner	Art Unit	
	Michael Borin	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 06/21/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1-19 are pending.

2. Response to restriction requirement filed 06/10/2005 is acknowledged. Applicant elected, with traverse, Group III. Applicant argues that there is no serious burden in searching all groups I-III as the groups are directed to essentially the same invention differing only in number of graphical user interfaces. Applicant's argument is deemed convincing and the claims are rejoined.

Information Disclosure Statement

3. Applicants' Information Disclosure Statement filed 06/21/2006 has been received and entered into the application. Accordingly, as reflected by the attached completed copies of forms PTO-1449, the cited references have been considered.

Specification

4. The specification is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. See, for example, pages 7,8,13. Applicant is requested to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102 and 103.

5. As stated in the disclosure of the invention, the methods according to the invention relate to computer generated graphical user interfaces that allow a user to rapidly parse a basket of protein structures based upon the presence of annotated sequence domains and the evolutionary relationships between these domains. The graphical user interfaces ("GUIs") , and various means for interacting with graphical user interfaces, such as, cursors, menu bars, pull down menus, dialog boxes, radio boxes, check boxes and selectable objects

6. Claims 1-3,11,12,17 are rejected under 35 U.S.C. 102(b) as anticipated by Nicholas et al. (GeneDoc: Analysis and Visualization of Genetic Variation. EMBNEW NEWS, 4, 1997, p. 1-4)

Nicholas et al describe GeneDoc – a set of tools for visualizing, editing, and analyzing multiple sequence alignments of protein sequences. GeneDoc embeds these tools in an explicitly evolutionary context. The software allows user to identify one or more alignment domains in the analyzed sequences, selecting a master sequence and displaying results on a graphical user interface. See Figure. The master sequence is either the consensus sequence for the alignment or for a group within the alignment or the first sequence within the alignment or a group within the alignment. GeneDoc's alignment scores are based on the accumulated knowledge of evolutionary processes incorporated in the empirical log-odds scoring matrices. GeneDoc provides such matrices for both protein and nucleic acid sequences. The alignment can be edited and repeated with an edited master sequence (see section "Editing Tools. With respect to visualization, the GeneDoc's visualization capabilities are built around two residue display modes and six shading modes. Quantify mode highlights the most frequent

residues found in each column of the alignment. Users can import information about protein secondary structure and color specific residues in a particular sequence, a group of sequences, or the entire alignment according to that structural information. GeneDoc has provisions for importing state information from the Protein Structure or many other structure prediction programs on EMBL server. (See section "Visualization").

With respect to phylogenetic tree, a user can specify a phylogenetic tree relating the sequences and the alignment results can be presented in a form most congruent with the user specified phylogenetic tree. The phylogenetic trees can be imported from another databases, or can be built and edited with the graphical tree building interface in GeneDoc (see section Editing Tools").

It is noted that because the GeneDoc is a computer-implemented software, computer system for using it is necessarily taught by Nicholas.

7. Claims 1-3,11,12,17 are rejected under 35 U.S.C. 102(b) as anticipated by Davidson et al. (Int. J. Digital Libraries, 1997, 1(1), 36-53; reference presented by applicant)

Davidson et al describe BioKleisli which is a digital library for biomedical researchers. Similarly to GeneDoc described in Nicholas et al. above, BioKliesli offer tools for multiple alignment and its visualization using graphical displays of biological data. The reference teaches that numerous graphical user interfaces have been build for various protein database analysis applications (p. 25).

8. Claims 4-10,13-16,18,19 are rejected under 35 U.S.C. 103(a) as obvious over Nicholas et al. alone or in view of Davidson et al.

The Nicholas et al. reference is applied as discussed above.

Nicholas does not teach use of several graphical user interfaces for visualization, although the reference implicitly addresses use of various types of data. It would have been obvious to one of ordinary skill in the art to distribute visualization tools addressed in the reference on several graphical user interfaces where the motivation would have been to enable user to be able to visualize and utilize more types of information at the same time which would facilitate analysis of protein alignment. Although the methods are not identically disclosed or described as set forth in 35 U.S.C. 102, if the differences between the subject matter sought to be patented and the prior art is such that the subject matter as a whole would have been obvious at a time the invention was made to an artisan having ordinary skills in the art to which the subject matter pertains, the invention is not patentable.

Further, Davidson et al teach that graphical display of biological data related to proteins is critical for user for gaining full value of the information, and that numerous graphical user interfaces have been build for various protein database analysis applications to reflect biological data related to structural features at the molecular, cellular and organism levels (p. 25). Thus, it would be obvious to use graphical user interfaces to present any type of information relevant to the analysis and visualization of protein alignment information in the method of Davidson et al.

Prior art made of record

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Schuler et al. (Proteins: Structure, Function and Genetics, 9 (1991), 180-190) teach a workbench for multiple sequence alignment construction and visualizing using variety of visualization tools.

US 6023659 and 6223186 are examples of use of multiple graphical user interfaces for viewing biomolecular sequence data.

Conclusion.

10. No claims are allowed

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (571) 272-0713. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Borin, Ph.D.

Primary Examiner

Art Unit 1631

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